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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,491	03/02/2004	Xiaorong Wang	P02082US1A	1864

7590 07/05/2005

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1200 Firestone Parkway
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EXAMINER

LE, HOA T

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,491

Applicant(s)

WANG ET AL.

Examiner

H. T. Le

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 13-22 is/are allowed.
- 6) ☒ Claim(s) 1,2,9,10,12 and 23 is/are rejected.
- 7) ☒ Claim(s) 3-8 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Upon reconsideration, the allowance indication of claim 1 in the last office action is hereby withdrawn. Any inconvenience caused by this reconsideration is regretted.

Accordingly, new grounds of rejection follow:

Claim Objections

2. Claim 3 is objected to because of the following informalities:

“futher” appears to be a misspelled word.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, it's unclear which step that “said step” is referred to.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 2 and 23 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3, 36 and 45 of copending Application No. 10/331,841. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reason.

Claim 1: The instant claim 1 and conflicting claims recite a composition having the same core component (polyalkenylbenzene), same outer layer component (alkenylbenzenes or conjugated dienes), and a functional group associated with the outer layer. The only difference is that instant claim 1 further requires that the functional group be “complexed” with a metal. Conflicting claims 3, 36 and 45 recite a functional group selected from the “group consisting of carboxylic acids, alcohols, amines, tin, silica, and mixtures thereof” (emphasis added). One of the functional group is tin, which is a metal; and “mixtures thereof” suggests a mixture of the metal with another functional group. Because they are functional groups, they are reactive by nature; therefore, it’s expected that the functional group would become “complexed” with tin. And thus the requirement “one metal complexed with said functional group” of instant claim 1 is met by the recitation in the conflicting claims 3, 36 and 45.

Claim 2: The limitation “monodisperse” is not really a limitation because the nanoparticle (in singular form) is necessarily monodisperse with itself.

Claim 23: Instant claim 23 is a product-by-process claim. The product limitations resulted from the recited process steps are: (1) an polyalkenylbenzene core, (2) an outer layer containing polymer containing monomer units alkenylbenzenes or conjugated dienes, (3) a functional group on the outer layer, and (3) a metal complexed with the functional group. Thus instant claim 23 and conflicting claims recite a composition having the same core component (polyalkenylbenzene), same outer layer component (alkenylbenzenes or conjugated dienes), and a functional group associated with the outer layer. The only difference is that instant claim 23 further requires that the functional group be “complexed” with a metal. Conflicting claims 3, 36 and 45 recite a functional group selected from the “group consisting of carboxylic acids, alcohols, amines, tin, silica, and mixtures thereof” (emphasis added). One of the functional group is tin, which is a metal; and “mixtures thereof” suggests a mixture of the metal with another functional group. Because they are functional groups, they are reactive by nature; therefore, it’s expected that the functional group would become “complexed” with tin. And thus the requirement “one metal complexed with said functional group” of instant claim 23 is met by the recitation in the conflicting claims 3, 36 and 45.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1, 2, 9, 10 and 23 are rejected under 35 U.S.C. 102(a) as being anticipated by the Wang Publication (US 2003/0198810).

Claim 1: See Wang, claims 32 and 35 or 40 and 41. The instant claim 1 and claim 36 of Wang recite a composition having the same core component (polyalkenylbenzene), same outer layer component (alkenylbenzenes or conjugated dienes), and a functional group associated with the outer layer. The only difference is that instant claim 1 further requires that the functional group be “complexed” with a metal. Claim 35 of Wang recite a functional group selected from the “group consisting of carboxylic acids, alcohols, amines, tin, silica, and mixtures thereof” (emphasis added). One of the functional group is tin, which is a metal; and “mixtures thereof” suggests a mixture of the metal with another functional group. Because they are functional groups, they are reactive by nature; therefore, it’s necessarily inherent that the functional group would become “complexed” with tin. And thus the requirement “one metal complexed with said functional group” of instant claim 1 is met.

Claim 2: The limitation “monodisperse” is not really a limitation because the nanoparticle (in singular form) is necessarily monodisperse with itself.

Claim 9: The functional group formed on the outer layer is by crosslinking. See Wang, examples. Thus, the nanoparticle of Wang is crosslinked.

Claim 10: See Wang, col. 1, par. 0007.

Claim 23: See Wang, claims 32 & 35 or 40-41. The instant claim 23 is a product-by-process claim. The product limitations resulted from the recited process steps are: (1) an polyalkenylbenzene core, (2) an outer layer containing polymer containing monomer units alkenylbenzenes or conjugated dienes, (3) a functional group on the outer layer, and (3) a metal complexed with the functional group. Thus instant claim 23 and claim 41 of Wang recite a composition having the same core component (polyalkenylbenzene), same outer layer component (alkenylbenzenes or conjugated dienes), and a functional group associated with the outer layer. The only difference is that instant claim 23 further requires that the functional group be “complexed” with a metal. Claim 41 of Wang recites a functional group selected from the “group consisting of carboxylic acids, alcohols, amines, tin, silica, and mixtures thereof” (emphasis added). One of the functional group is tin, which is a metal; and “mixtures thereof” suggests a mixture of the metal with another functional group. Because they are functional groups, they are reactive by nature; therefore, it’s expected that the functional group would become “complexed” with tin. And thus the requirement “one metal complexed with said functional group” of instant claim 23 is met.

Allowable Subject Matter

8. Claims 11, 13-22 are allowed.
9. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

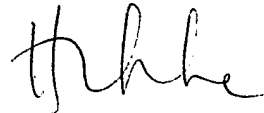
10. Claims 3-8 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: With regard to the product claims, none of the prior art of record, singly or in combination, teach or suggest a nanoparticle having two layers of specific polymeric materials as claimed, wherein a functional group in the outer layer is complexed with a specific metal as claims, namely Cu, Ti, Fe, Cd, Ni, Pd and mixtures of these. With regard to the process claims, none of the prior art references of record teach a method wherein a metal is complexed with a coating layer of a nanoparticle via a functional group.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'H. T. Le', is positioned above the printed name.

H. T. Le
Primary Examiner
Art Unit 1773

June 27, 2005